

COURSE TITLE:

COLLOIDS IN ENVIRONMENT

COURSE DESCRIPTION:

Colloids: definitions, nomenclature, intermolecular and interparticle forces. Macromolecular colloids and gels: the formation and structure of macromolecules, properties of polymer solutions, determination of the molecular mass of macromolecules. Association colloids and self-assembly systems: micellisation, solubilization. Micro(nano)phases: dispersions, emulsions and foams, foaming and antifoaming agents, froth flotation. Preparation of colloidal dispersions: dispersion and condensation methods. Interfaces: surface tension, surface energy, wetting phenomena. Adsorption: adsorption equations. Electrostatic and steric stabilization, flocculation, coagulation, the DLVO theory. Electrokinetic phenomena. Optical properties, rheological behaviour of colloidal systems.

LITERATURE:

Shaw, D.J.: Introduction to Colloid and Surface Chemistry, Butterworth-Heinemann, 1992.

Th. F. Tadros: Surfactants in Agrochemicals, Marcel Dekker Inc., New York, 1994.

M.J. Schwuger: Detergents in the Environments, Marcel Dekker Inc., New York, 1996.

Hunter, R.J.: Foundations of Colloid Science, Oxford Univ. Press, 2004.

Csempez, F.: Experimental Colloid Chemistry, Semmelweis Publishers, 2012.

TEACHER:

Ferenc Csempez

associate professor